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Contributors, subscribers and readers will find important information on the sixteenth advertising page following the reading matter.

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THE QUOTA OF DOCTORS FOR THE ARMY.

There are about 150,000 physicians listed in medical directories. Deducting from these 50,000 who are not in practice, or are physically incompetent, leaves 100,000 doctors available. Of this number the Surgeon-General requires 20,000, or one-fifth of the active practitioners as officers in the Medical Reserve Corps of the Army. This means that one out of every five physicians in California is needed in the Army and *must go at once*. Every reader of this page is urged most seriously to see that the profession in his vicinity is represented at least in proportion.

The lowest commission offered a doctor is First Lieutenant, which draws in pay \$2000 a year; Captains receive \$2400 and Majors \$3000. The cost of equipment is about \$150 to \$175, according to the desires of the individual. The individual outlay when once in the service is principally expenditure for food, which averages about \$25 a month.

The need of doctors is not alone for the mobile army but also in concentration camps, evacuation hospitals, base hospitals and on transports. It is of decided advantage to volunteer your services and receive the benefit of the very necessary training accorded physicians in medical training camps. It is a safe assumption that for those who receive such training and show their aptitude for the service, advancement will be rapid.

Applications for commissions in the Medical Reserve Corps will be sent to you by your Local Examining Board or by the Editor of this paper. Apply for your commission *now*. Your country needs you.

DANGER FROM BOTULISM.

In the present national crisis one of the chief topics of interest to the average citizen has been the rapidity with which staple articles of diet have risen in price until they are almost beyond the reach of the small wage earner. In order to combat the "high cost of living" and to conserve such foods as can be shipped to our allies in Europe, there has been a widely advertised propaganda, urging that all who have access to the fresh material should provide for the coming winter by canning vegetables and fruits at home; and the leading newspapers have co-operated with the authorities by publishing detailed descriptions of how the canning process should be carried out.

It is probable that much larger quantities of fruits and vegetables are being canned at home this year than ever before, and that many persons will be depending upon home-canned foods who have formerly used only commercially-canned products. It is urgent, therefore, that the medical profession should be alert to the danger which may arise from poisoning from foods which have been improperly preserved.

One of the most important types of food poisoning in California in recent years is due to the toxin of the *Bacillus botulinus*, which, as has been shown by Dickson,^{1,2} may be produced in home-canned vegetables and fruits. The majority of human cases of botulism have followed the ingestion of home-canned beans and corn, but cases have been described in which apricots and asparagus were at fault, and Dickson's experimental work has shown

¹ Dickson, E. C. Botulism, An Experimental Study. Jour. Amer. Med. Assoc., 1915. LXV, 492.

² Dickson, E. C. Botulism, Its Occurrence in California. Cal. State Jour. of Med., 1916. XIV, 143.

that pease, artichokes and peaches must also be considered with suspicion.

The great danger of poisoning from botulism lies in the fact that the toxin of the *B. botulinus* may be present in vegetables and fruits in sufficient amounts to cause death, without producing any marked change in the appearance of the food. There is usually a certain amount of fermentation and there may be a slightly "spoiled" odor, somewhat like butyric acid, but the vegetable or fruit may not be softened or discolored, and there are at least three fatal cases on record in which the housewife merely tasted the contents of jars of vegetables to determine whether they were spoiled. The taste is sharp or slightly rancid, but has been described as "not unpleasant" in cases where string beans were served as salad, and apricots were served as dessert. Heating the toxin to the boiling point will destroy it, and it is therefore important that no home-canned vegetables or fruits should be tasted until they have been boiled.

Symptoms of poisoning usually occur within thirty-six hours after the food has been eaten, although they may appear within twelve hours. There may be initial gastro-intestinal disturbances, with burning in the stomach, nausea, vomiting and diarrhoea, but gastro-intestinal irritation is of short duration, and obstinate constipation soon follows. Among the earliest symptoms are disturbances of vision, dilatation of the pupils, loss of accommodation, double vision due to paralysis of the extrinsic muscles of the eyes, and blepharoptosis. Difficulty in swallowing and in speech soon follow, due to paralysis of the muscles of the pharynx and larynx. The mouth and skin are dry, the tongue coated, and the flow of saliva is inhibited. The patients suffer greatly from the pressure of thick, tenacious mucus in the pharynx which they are unable to raise. Strangling spells brought on by attempts to swallow or to cough may be very severe. There is marked general weakness, usually without true paralysis of the skeletal muscles, and loss of muscular co-ordination. The temperature is usually normal or sub-normal, the pulse may be slow at first but soon becomes rapid, and mentality is clear. The duration of a fatal illness is usually from about four to twelve days, and when recovery occurs the convalescence is slow and tedious. There are seldom any severe permanent disabilities in patients who have recovered. When death occurs it is usually from respiratory or cardiac failure, the course and termination of the illness being that of bulbar paralysis.

The majority of recorded cases have occurred in California and the mortality has been over 60 per cent. In a number of instances the poisoning in human beings has occurred at the same time as outbreaks of paralysis (limber-neck) in chickens and turkeys which ate the discarded food.

Treatment in severe cases is entirely unsatisfactory, but since the illness is caused by a limited amount of the poison, there is no increase in the amount of toxin after the food is taken into the gastro-intestinal tract, and since there is promise of complete recovery if the immediate action of the poison is withstood, active treatment should be

persevered with in all cases. Emesis should be induced even though the patient has vomited spontaneously, and though several hours may have elapsed since the food was taken into the stomach, and active purgation should be instituted if possible, preferably with castor oil or epsom salts. Enemata should be given if purgation is not obtained. The patient should be kept as quiet as possible and should have sufficient simple food and plenty of water. Stimulants should be given as indicated. Strychnine may be given freely and seems to be of value. Pilocarpine may relieve the dryness of the mouth and pharynx, but must be used with care, as the patient is unable to cough up fluid from the lungs in case of pulmonary edema. The danger of insufflation pneumonia should be borne in mind, and it is often advisable to give water per rectum instead of by mouth. Oxygen should be held in readiness for artificial respiration, and, since respiratory failure may occur while the circulation is still good, the artificial respiration should be maintained for hours if necessary. Anti-toxin sera may be of some value if given very early, and it is hoped that they will be placed upon the market within a few months.

The control of botulism is in the hands of the housewife rather than in the hands of the physician, as care in the preparation of home-canned foods will eliminate all danger of poisoning. Fruits and vegetables should be canned by the methods that are authorized by the United States Department of Agriculture. No home-canned products should be served, or even tasted, until they have been boiled. No canned vegetables or fruits which show the slightest sign of spoiling should be eaten or tasted by human beings, and all spoiled material should be boiled for at least an hour before it is discarded.

RED CROSS UNITS.

Last month attention was called to the opportunity afforded by the Red Cross for physicians at home, as well as for those able with better fortune to serve with the fighting forces of the nation. For the purpose of service with the army, or for purposes of training personnel, there are various Red Cross units available in which a man of any capability, or of any inclination or special training, can find valuable and useful employment.

First on this list comes the Red Cross ambulance company, which supplements and assists the regular army service in the removal of wounded from the front to hospital accommodations. These companies may be used on hospital trains and ships, as well as on other means of transport, and also for the establishment of emergency hospitals. The ambulance company has five medical officers and a corps of 86 enlisted men. The base hospital unit is enrolled for service at a military base. Its organization includes a director with a staff made up of an adjutant, quartermaster and a registrar. It has a surgical section with a chief and eight staff surgeons, including an orthopedist and one or more eye, throat and ear specialists. Its medical section has a chief and five staff physicians, including a specialist on nervous and mental diseases. The laboratory section has a chief and two qualified as-